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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/087,359	03/01/2002	Toshihiro Yoshida	791_188	3319
25191	7590	04/22/2004	EXAMINER	
BURR & BROWN PO BOX 7068 SYRACUSE, NY 13261-7068			YUAN, DAH WEI D	
			ART UNIT	PAPER NUMBER
			1745	
DATE MAILED: 04/22/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/087,359

Applicant(s)

YOSHIDA ET AL.

Examiner

Dah-Wei D. Yuan

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM  
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 31 March 2004.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-53 is/are pending in the application.  
4a) Of the above claim(s) 1-21 and 29-53 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 22-28 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 01 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 05012002.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_

**ELECTRODE BODY EVALUATION METHOD AND LITHIUM**  
**SECONDARY CELL SUING THE SAME**

Examiner: Yuan      S.N. 10/087,359      Art Unit: 1745      April 12, 2004

***Election/Restrictions***

1. Applicant's election with traverse of Group II-2, claims 22-28, in Paper filed on March 31, 2004 is acknowledged. The traversal is on the ground(s) that no serious burden on the examiner to search the three distinct inventions. This is not found persuasive because regardless of search method, invention of different limitations will require different search strategies, and the times to consider the relevancy of collective references would increase proportionally as well.

In addition, if Applicant elects claims directed to the product, and a product claim is subsequently found allowable, withdrawn process claims which depend from or otherwise include all the limitations of the allowable product claim will be rejoined.

The requirement is still deemed proper and is therefore made FINAL.

***Claim Objections***

2. Claims 25,26 are objected to because of the following informalities:

Claims 25 and 26 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. It is suggested that claims 25 and 26 are dependent on the independent claim 22. For the interest of compact prosecution, claims 25 and 26 are examined as reciting "The lithium secondary cell according to claim 22".

Appropriate corrections are required.

***Claim Rejections - 35 USC § 102/103***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 22-25,27,28 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Higuchi et al. (US 5,824,430).

Higuchi et al. teach a lithium secondary battery comprising a lithium-containing metal oxide as the positive electrode, a mixture of carbon and metallic lithium as the negative electrode, and a mixture of organic solvent and lithium salt as the electrolyte. The battery further comprises a separator comprising a porous laminate of polypropylene layer having a weight average molecular weight of 500,000 or more. Higuchi et al. further teach the film-forming condition, wherein the extrusion temperature may be from 220° to 290°C, the casting roll temperature may be from 20° to 120°C, the draw ratio may be from 10 to 100 m/min, the take-

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off speed may be from 3 to 100 m/min, the total thickness of film may be from 20 to 100  $\mu\text{m}$ .

See Abstract; Column 1, Lines 32-41; Column 3, Lines 3-22; Column 4, Lines 47-57; Column 7, Lines 16-36.

Higuchi et al. do not specifically disclose the penetration ratio of electrolyte or organic solvent through the separator. However, it is the position of the examiner that such properties are inherent, given that the separator disclosed by Higuchi et al. and the present application having similar physical characteristics. A reference which is silent about a claimed invention's features is inherently anticipatory if the missing feature is necessarily present in that which is described in the reference. Inherency is not established by probabilities or possibilities. In re Robertson, 49 USPQ2d 1949 (1999). Alternatively, it would have been obvious to one of ordinary skill in the art to adjust the compression (rolling) condition of the polypropylene separator in order to produce a separator of appropriate thickness, pore size, porosity and specific penetration rates.

6. Claims 22-25,27,28 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ondeck et al. (US 5,948,557).

Ondeck et al. teach a lithium ion battery comprising at least two electrodes separated by a dielectric material (a microporous separator). The microporous material comprises a matrix of substantially linear polyolefin, finely divided substantially water-insoluble filler particles distributed throughout the matrix, and a network of interconnecting pores communicating substantially throughout the material. Examples of non-siliceous filler particles include particles

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of carbon black, zirconia, magnesia, alumina, calcium carbonate, magnesium carbonate and magnesium hydroxide. The material can be produced by a blown film process in which a mixture of polyolefin and filler particles are extruded followed by annealing. See Abstract; Column 1, Lines 27-41; Example 1-2.

Ondeck et al. do not specifically disclose the penetration ratio of electrolyte or organic solvent through the separator. However, it is the position of the examiner that such properties are inherent, given that the separator disclosed by Ondeck et al. and the present application having similar physical characteristics. A reference which is silent about a claimed invention's features is inherently anticipatory if the missing feature is necessarily present in that which is described in the reference. Inherency is not established by probabilities or possibilities. In re Robertson, 49 USPQ2d 1949 (1999). Alternatively, it would have been obvious to one of ordinary skill in the art to adjust the extrusion condition of the polyolefin separator in order to produce a separator of appropriate thickness, pore size, porosity and specific penetration rates.

7. Claims 22-24,26-28 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hommura et al. (US 6,458,490 B1).

Hommura et al. teach a lithium ion secondary battery comprising a negative electrode of a lithium alloy, a positive electrode of a spinel manganese composite metal oxide, and a separator of natural cellulose, regenerated cellulose or their mixture. The preferable thickness of the separator is 15 to 60  $\mu\text{m}$ , more preferably 15 to 50  $\mu\text{m}$ . The cellulose can be further surface

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treated for improving permeability of electrolyte ions by using chemicals, such as surface active agent. See Abstract; Column 3, Lines 57-67; Column 4, Lines 26-61; Claims 1,2.

Hommura et al. do not specifically disclose the penetration ratio of electrolyte or organic solvent through the separator. However, it is the position of the examiner that such properties are inherent, given that the separator disclosed by Hommura et al. and the present application having similar physical characteristics. A reference which is silent about a claimed invention's features is inherently anticipatory if the missing feature is necessarily present in that which is described in the reference. Inherency is not established by probabilities or possibilities. In re Robertson, 49 USPQ2d 1949 (1999). Alternatively, it would have been obvious to one of ordinary skill in the art to treat the surface of the cellulose separator in order to produce a separator of appropriate surface characteristic, permeability of electrolyte and specific penetration rates.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dah-Wei D. Yuan whose telephone number is (571) 272-1295. The examiner can normally be reached on Monday-Friday (8:00-5:00).

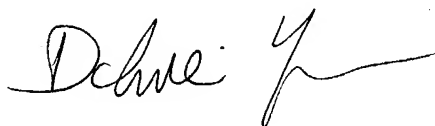
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

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may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dah-Wei D. Yuan  
April 12, 2004

A handwritten signature in cursive script, appearing to read 'Dahwei Y', written in black ink.